WASTE MINIMIZATION AND POLLUTION PREVENTION AWARENESS PROGRAM

INTRODUCTION

Waste Minimization and Pollution Prevention (WM/P2) concepts will be embedded into all aspects of research and operations at Fermilab. A strong WM/P2 program is an integral part of the Laboratory's Environmental Management System. Fermilab's WM/P2 Program reflects Department of Energy, national and local WM/P2 goals and policies. It represents an ongoing effort to integrate WM/P2 with our research mission.

REGULATORY DRIVERS

Fermilab is required to have a Waste Minimization and Pollution Prevention Program. The attached list describes the regulatory drivers that require the program and its elements.

PROGRAM ELEMENTS

Fermilab's WM/P2 program is anchored by three tenets commonly associated with pollution prevention objectives. They are **Reduce, Reuse and Recycle.**

Reduce

The most effective way to eliminate waste and reduce pollution is to avoid creating it. Source reduction prevents the generation of waste in the first place and thereby minimizes the environmental impact. Consider the total life cycle cost of materials, rather than just the initial cost. Ways to reduce include:

- Choose products and materials that are less toxic or can easily be reused or recycled.
- Purchase durable long-lasting goods.
- Use sustainable design and engineering practices to reduce the amounts of non-renewable raw materials required. Design and engineer systems for long life. Incorporate end-of- lifecycle recycling and reuse options into processes, products and systems.

Reuse

All items eventually reach an end to their intended need. Often times, however, an item may not have reached the end of its serviceable life before it is no longer needed. In this case, opportunities exit to make items available to others who might find a renewed use. Fermilab has several options to make items available to others for reuse including a chemical exchange system and a property exchange program, which can make some items available for both internal (Fermilab) and external (DOE complex) reuse.

Recycle

Items that cannot be reused should be recycled whenever possible. Recycling is the preferred option for materials that are being discarded. Recycling reduces the demand for raw materials and the associated environmental impacts. Recycled materials also typically require much less energy to produce compared to goods made from raw materials. Fermilab's recycling program includes an office desk-side program as well as several other programs run by various internal organizations. The attached table describes items commonly recycled at the lab.

Construction and Demolition debris can also be recycled. Typically 85% of the waste generated during construction and demolition projects occurring at the lab has the potential to be recycled. Where recycling of this material is desired, the sub-contract or other procurement documents should specifically reflect it.

Environmentally Preferable Purchasing Program

Environmentally Preferable Purchasing (EPP) is buying products that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product or service. Fermilab is required by the EPA to purchase environmentally preferable products, as designated by the EPA. Fermilab's EPP program is run through Business Services, Purchasing Group.

WM/P2 GOALS

Reduction and improvement goals are set as part of the Lab's Environmental Management System (EMS). Our goals reflect a desire to meet or exceed DOE's Pollution Prevention and Energy Efficiency Goals. Fermilab's WM/P2 goals are developed, formalized and set by the Environmental Protection Subcommittee. Our goal commitments are documented via the EMS, Environmental Management Program Form.

REPORTING

Progress toward meeting our goals will be reported to DOE for inclusion in their waste reduction report and to EPA in the SARA Title III, Section 313 (TRI) report. To support these reporting requirements, Divisions/Sections shall document all their waste reduction and recycling activities and report them to the ESH – Environmental Protection Group.

Common Currently Recycled Items at Fermilab

Recyclable Items	Recycling Method
White and mixed paper, newsprint and magazines	Janitorial Service
Cardboard – boxes must be flattened and packing materials removed.	Janitorial Service
Scrap metal (various)	Local scrap pick-up locations
Computers and electronics	Business Services Pickup
Batteries: Lead-acid, nickel-cadmium, silver oxide, mercury and nickel-metal hydride	Submit HCTT* Waste Pickup Request Form through your Waste Coordinator
Fluorescent and high-intensity discharge lamps	Submit HCTT Waste Pickup Request Form through your Waste Coordinator
Used oils	Submit HCTT Waste Pickup Request Form through your Waste Coordinator
Wood & plastic pallets	Call BSS for pickup
Printer toner cartridges	Drop-off bin, Wilson Hall, ground floor
Construction/Demolition debris	Must be included in construction/ demolition contract

* HCTT – Hazard Control Technology Team

In addition to the above material recycled lab-wide, local area recycling of other items (such as aluminum cans, paint cans, aerosol cans, glass bottles and plastic bottles) is also encouraged.

Pollution Prevention Regulations and Policies

The following table provides direct legal and policy drivers that require the implementation of Fermilab's Waste Minimization and Pollution Prevention Program.

Federal Procurement Guidelines	Resource Conservation and Recovery Act (RCRA) 40 CFR 247	Requires procurement of recovered materials by federal facilities and contractors
Hazardous Waste Generator Manifest Certification	RCRA 40 CFR 262, 264-265	Requires generator to put in place a hazardous waste minimization program
Hazardous Waste Generator Biennial Report Certification	RCRA 40 CFR 262, 264-265	Requires generator to put in place a hazardous waste minimization program
Hazardous Waste Part B Permit Conditions	RCRA 40 CFR 270	Requires generator to put in place a hazardous waste minimization program
Toxic Release Inventory Reporting	Emergency Planning and Community Right-to-Know Act (EPCRA) 40 CFR 372	Establish reporting requirements for the use, storage, and on-site and off-site transfers of hazardous and toxic chemicals
National Pollution Prevention Policy	Pollution Prevention Act (PPA) 42 USC 13101	Requires federal facilities to deploy pollution prevention as the first choice in environmental management
Toxic Release Inventory Reporting	PPA 42 USC 13106	Expands EPCRA reporting requirements to include source reduction and recycling information
Clean Fuel Fleet Program	Clean Air Act (CAA) 40 CFR 88	Requirement to meet clean-fuel fleet vehicle emissions standards
Protection of Stratospheric Ozone	CAA 40 CFR 82	Phase-out of CFCs, halons, and carbon tetrachloride; limit on emissions of ozone-depleting substances during the servicing, use and disposal of equipment containing those substances
Radiation Protection Programs	10 CFR 835	Requires the establishment of goals and performance indicators for the minimization of radioactive waste. It also requires a waste minimization program that will reduce the generation of radioactive waste and spread of contamination from Contamination, High Contamination or Airborne Radioactivity Areas.
Storm Water Pollution Prevention Plan	Clean Water Act (CWA) 40 CFR 122	Requires that industrial Storm water discharge facilities have an on-site pollution prevention plan
Spill Prevention, Control, and Countermeasures Plan	CWA 40 CFR 110.112	Direct dischargers must have plans to prevent and respond to spills.
Environment, Safety, and Health Policy for DOE	DOE Order 450.1	Requires Pollution Prevention Plans, Annual Waste Reduction Reports, and a Pollution Prevention Awareness Program

Radioactive Waste Management	DOE Order 435.1	Requires Waste Management Plans including actions to minimize radioactive waste generation. Requires each DOE LLW generator preparing a design for a new process or process change to incorporate principles into the design that will minimize the generation of LLW.
Federal Fleet and Transportation Efficiency	Executive Order (EO) EO 13149 (April 21, 2000)	Requires reductions in the amount of petroleum fuel used in federal fleet vehicles, including contractor-operated vehicles.
Leadership in Environmental Management	EO 13148 (April 21, 2000)	Requires reductions in use of specified toxic chemicals, development of environmental management systems, and environmental performance measures.
Developing and Promoting Biobased Products and Energy	EO 13134 (August 12, 1999)	Directs increased federal planning and research on biobased products and calls for demonstration projects and private sector incentives.
Efficient Energy Management	EO 13123 (June 3, 1999)	Requires energy audits, procurement of Energy Star products, purchase of electricity from renewable sources, and achievement of energy use reductions per unit floor space for federal facilities.
Waste Prevention, Recycling, and Federal Acquisition	EO 13101 (September 14, 1998)	Requires procurement of environmentally-preferable products and services and establishment of pollution prevention and recycling programs
DOE Pollution Prevention and Energy Goals	Secretary of Energy Memorandum November 12, 1999	Sets Complex-wide pollution prevention and energy efficiency goals and requires that site-specific goals be established and progress tracked.
DOE Pollution Prevention Program Guidance	DOE Pollution Prevention Program Plan, 1996	Provides contractors with specific guidance on meeting DOE HQ pollution prevention expectations.
Sewage System Discharge	Cities of Batavia & Warrenville Sewage Discharge Ordinances	Limits materials that can discharged in sinks and drains, or that might otherwise enter the Richland sewage system.
Kane County's Recycling Requirements	Kane County Mandatory Recycling Ordinance	Establishments must recycle the two largest recyclable materials in their garbage.

Additional Incentives for Pollution Prevention

National Environmental Policy	National Environmental Policy Act (NEPA) 10 CFR 1021	Requires environmental review of all federal actions, including federal contractors.
National Energy Policy	Energy Policy Act	Promotes energy conservation and efficiency and promote renewable energy.
Handling and Transportation Requirements	Hazardous Materials Transportation Act (HMTA)	Safety requirements raise costs of handling and transporting waste

	49 CFR 171-180	
Handling Requirements	Occupational Safety & Health Act (OSHA) 29 CFR 1910	Safety requirements raise costs of handling and transporting waste
Environmental Taxes	Revenue Reconciliation Act (RRA)	Taxes on ozone-depleting chemicals